



Pavement Management Report

City Council Presentation

May 3, 2016

Nick Williams, Public Works Director

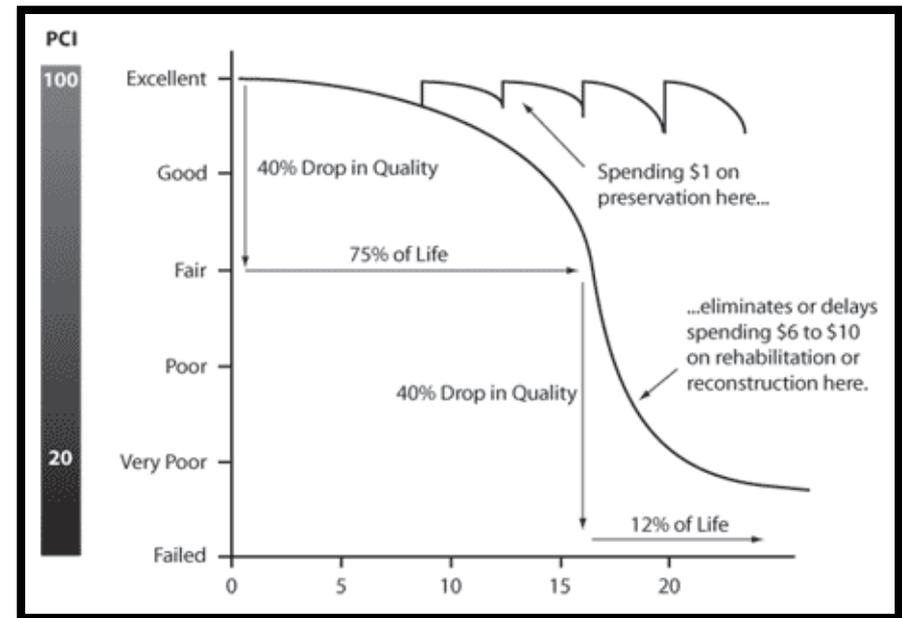
Eugene Calvert, City Engineer

Spencer Maxwell and Justin Brown, Freese and Nichols, Inc.

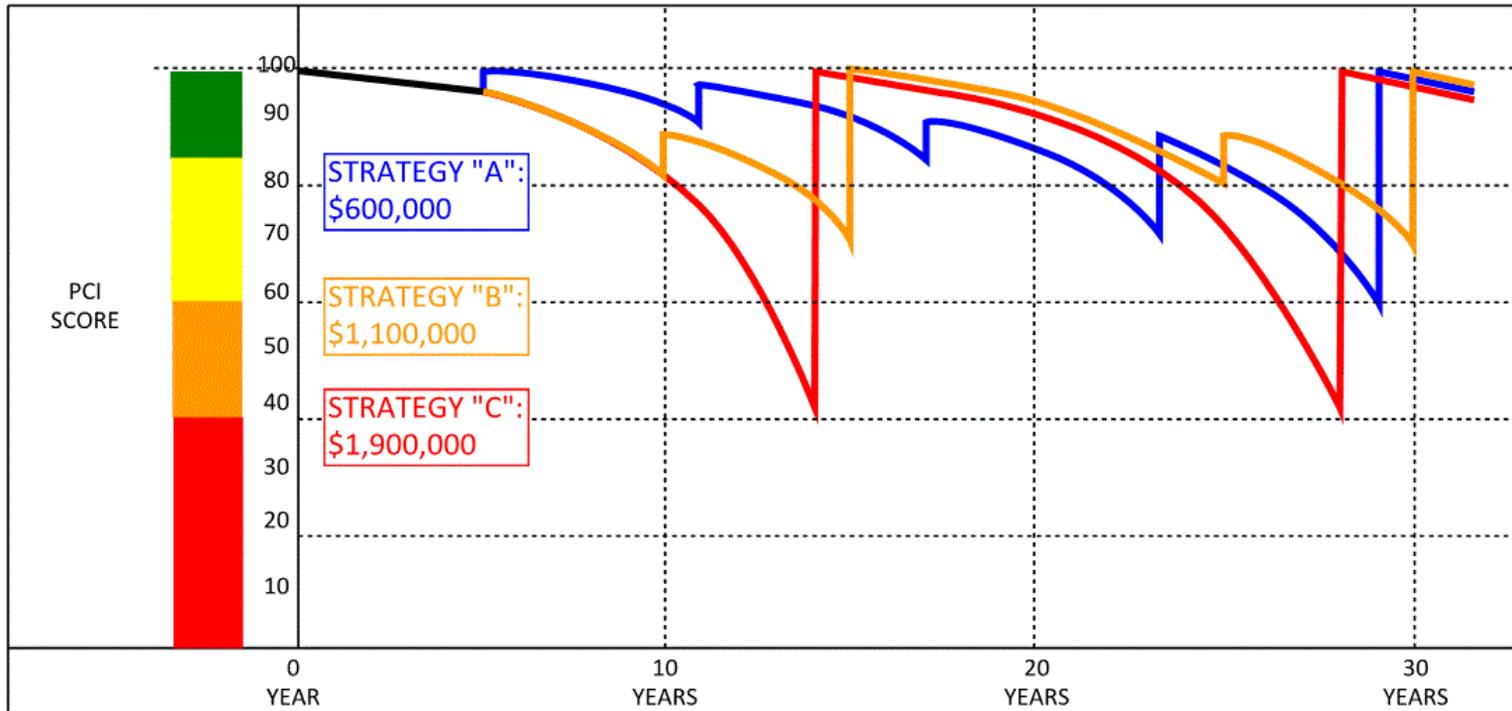


Pavement Condition Index (PCI)

- Standard procedure for rating the condition of a pavement network based on distresses
- Developed by US Army Corps of Engineers
- Provides a numerical rating on a scale of 0 to 100



Principles of Pavement Management



Observed Distresses:

- Alligator cracking
- Longitudinal cracking
- Transverse cracking
- Potholes
- Repairs and utility patches
- Raveling and weathering

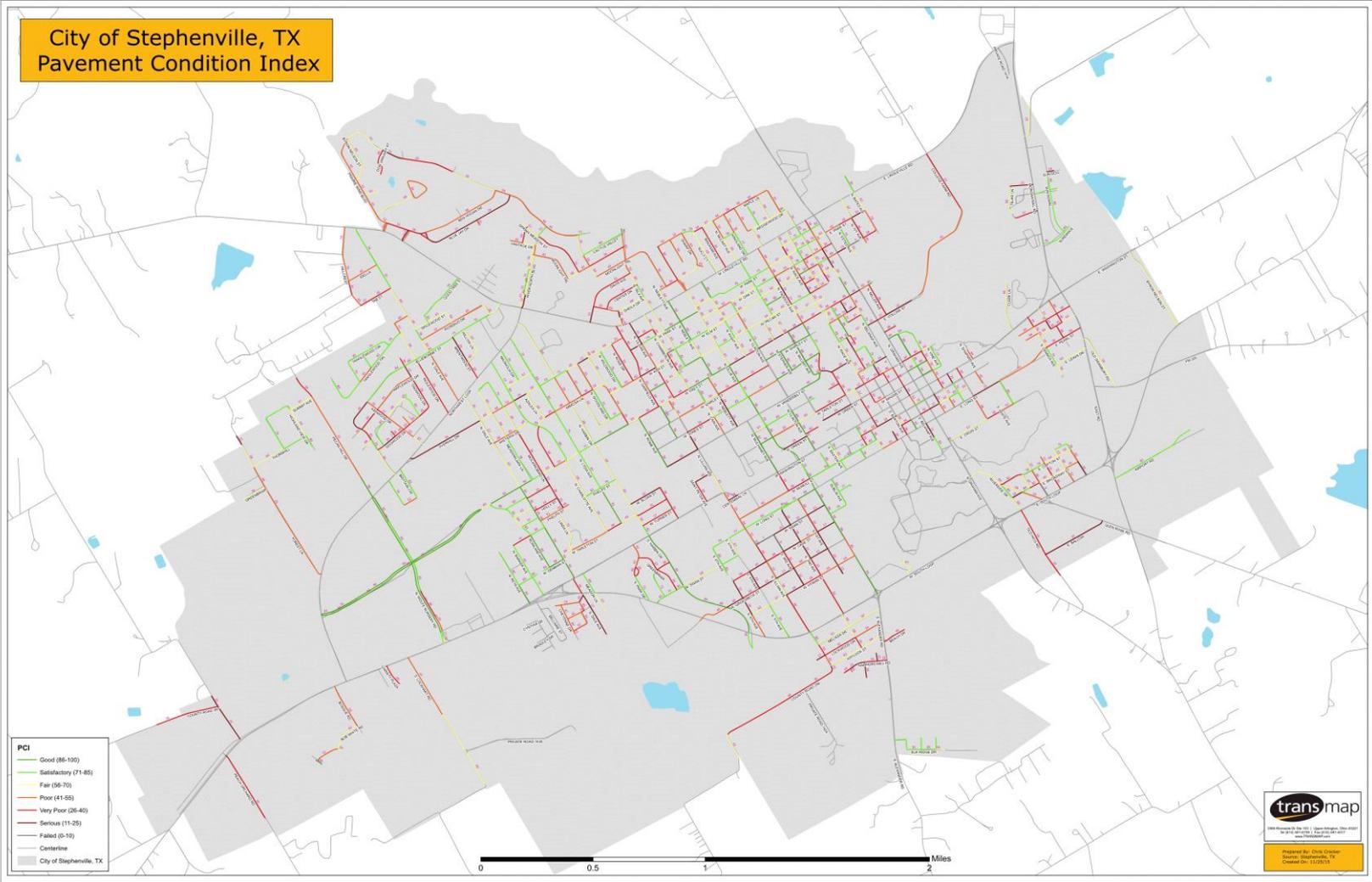


Alligator cracking, potholes and utility cuts on S. 3rd Ave.



Longitudinal and transverse cracking on W. Oak St.

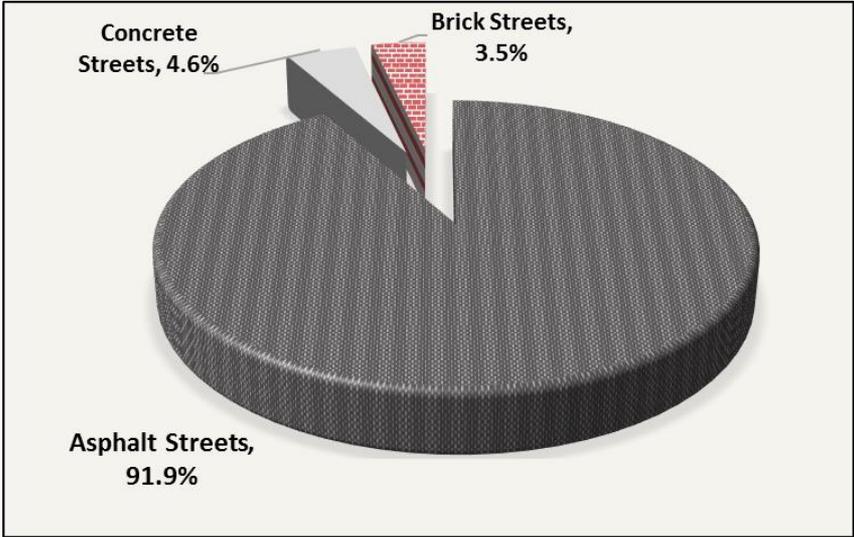
Pavement Data Analysis



Pavement Data Analysis



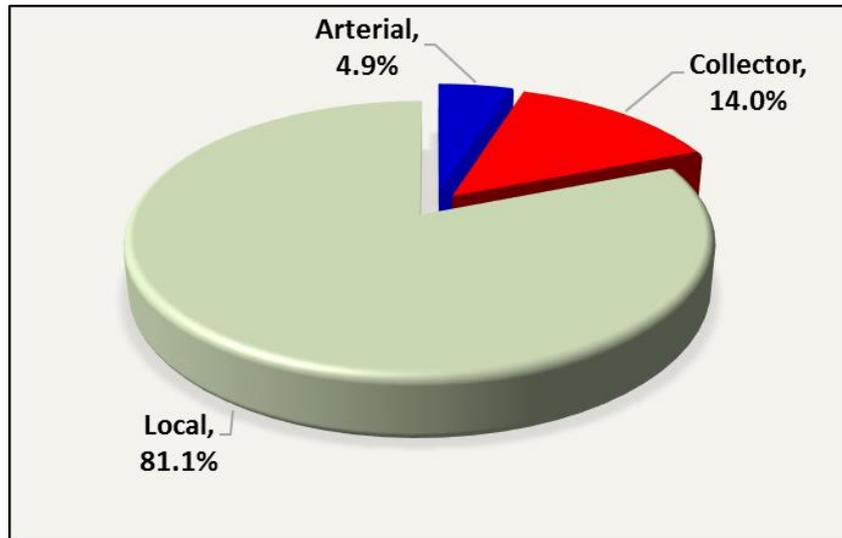
Pavement Type	# of Miles	# of Square Yards	% by # of Square Yards	Weighted Average PCI
Asphalt	80.2	1,132,522	91.9%	56
Concrete	4.2	56,710	4.6%	89
Brick	3.0	43,750	3.5%	N/A
Total	87.4	1,232,982	100%	58



Pavement Data Analysis



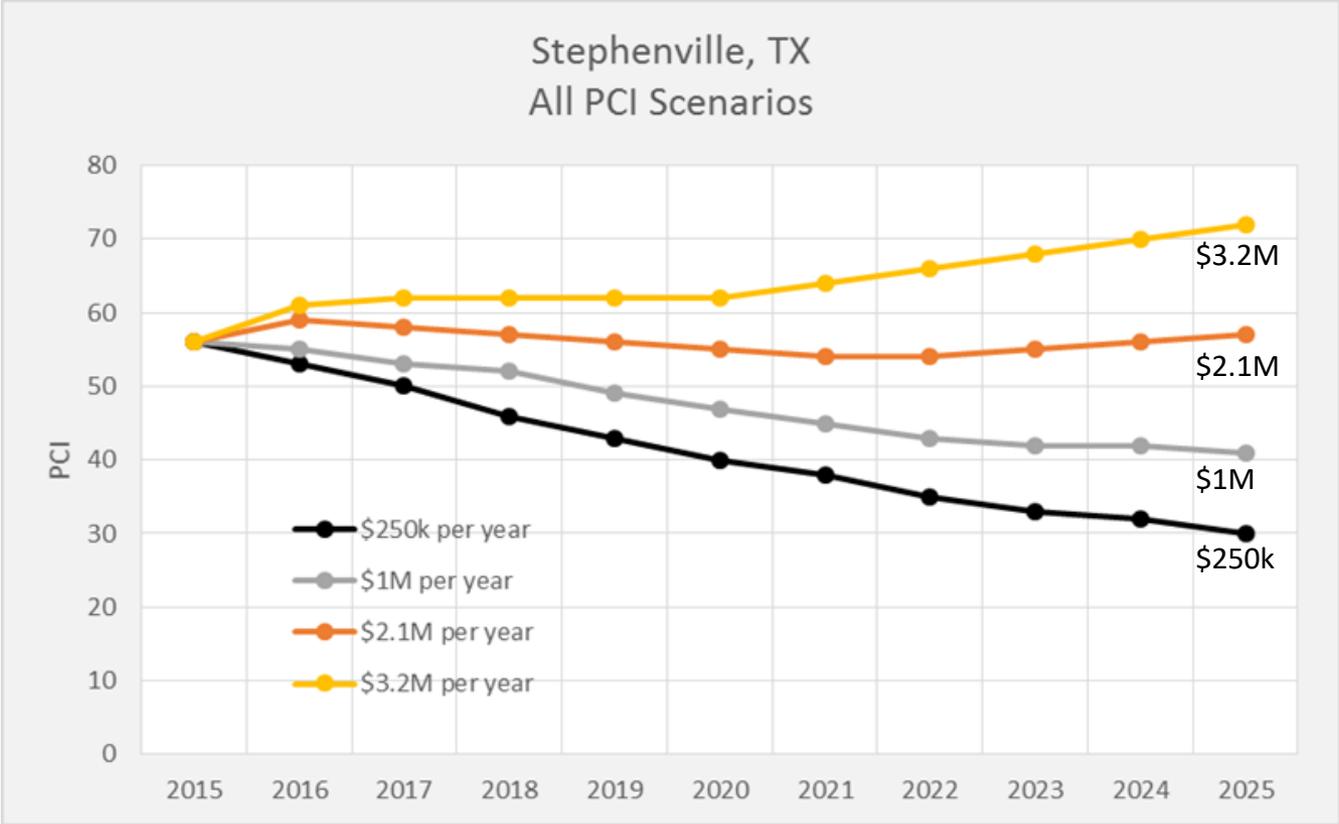
MicroPAVER Functional Class Code	# of Sections	Miles	Square Yards	% of Network by Sq. Yd.	Weighted Avg PCI
Code B Arterial	43	3.68	55,542	4.9%	73
Code C Collector	130	11.47	158,958	14.0%	58
Code E Local	751	65.05	918,022	81.1%	55
Total	924	80.20	1,132,522		56



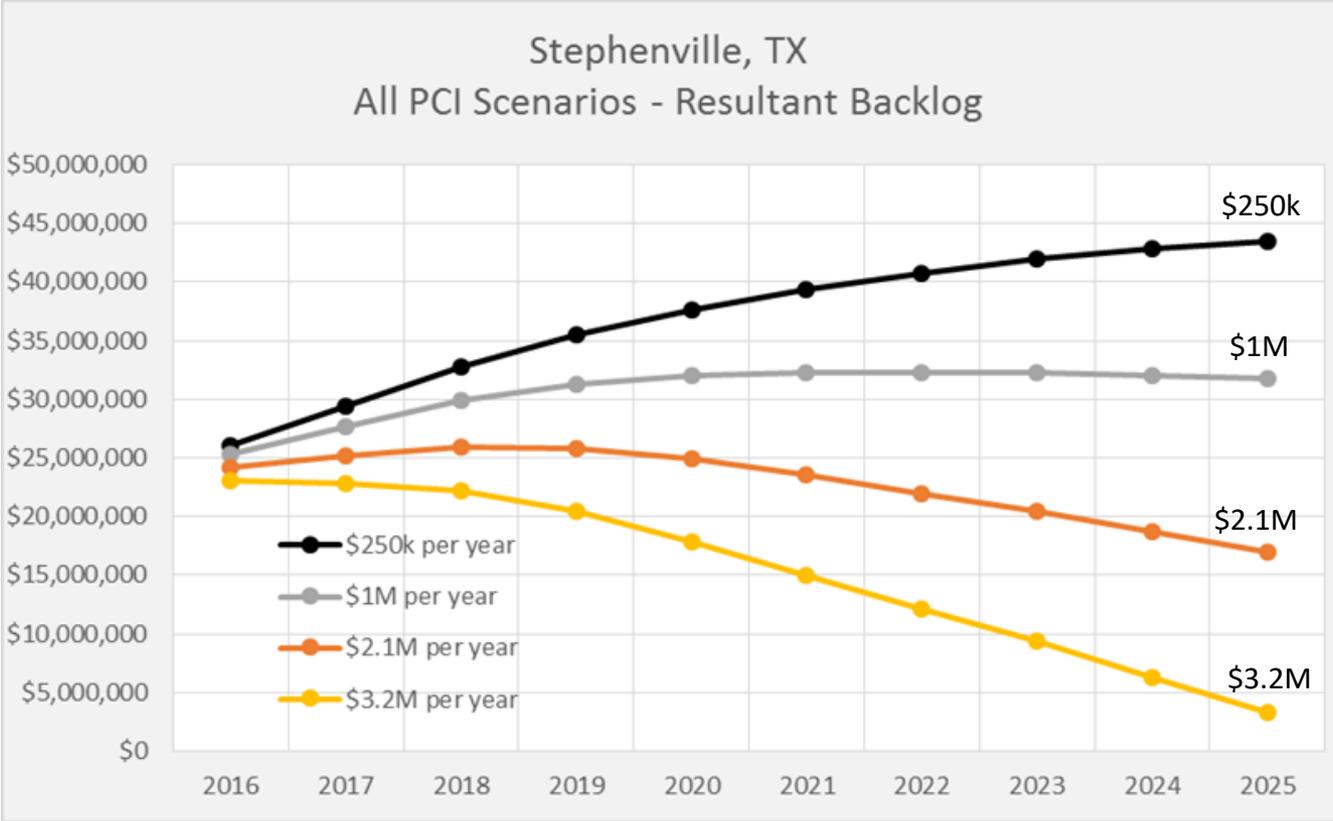
Four budget scenarios, modeled over ten years:

- Maintaining current funding level, what happens to PCI?
 - Decreases from 56 to 30
- Increasing funding to \$1M per year, what happens to PCI?
 - Decreases from 56 to 41
- Budget required to maintain average PCI of 56:
 - \$2.1M per year
- Budget required to attain an average 71 PCI in ten years:
 - \$3.2M per year

Pavement Budget Scenarios



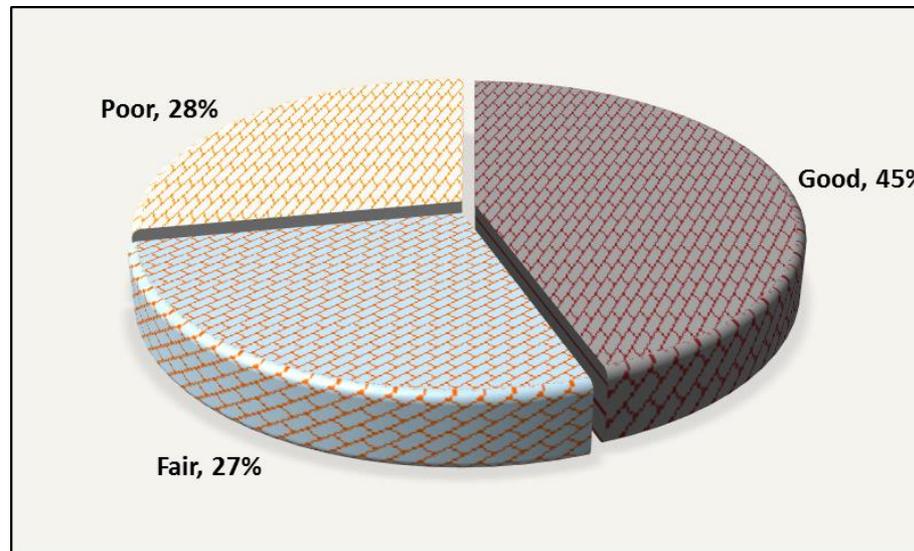
Pavement Budget Scenarios



Brick Pavement Analysis

- PCI standard methods do not address brick pavements
- Each section scored as Good, Fair, and Poor
- Primary distresses observed: Rutting, Displacement, Patching, Depressions

Rating Distribution of Brick Pavement:



Brick Pavement Analysis



West Green Street, rated “good”



North Belknap Street, rated “poor”

- Total estimated cost to improve all brick streets to “Good”: \$1,070,000
- Consider designating brick street districts (downtown, near historic marker on Vanderbilt)
- Consider reconstructing heavily traveled streets in poor condition with asphalt

Funding Strategies



- General Tax Levy
- Reallocation of Sales Tax Revenues
- Transportation User Fees
- General Obligation Bonds
- Community Development Block Grants
- Special Assessments
- Franchise Utility Fees
- Public Improvement Districts
- City-County Interlocal Agreements
- Utility Service Fees
- Roadway Impact Fees

- Maintain the database
- Update PCI scores every three to five years
- Apply engineering judgement to database recommendations
- Make pavement maintenance a budget priority